APPLICATION FOR TREATMENT AS A STATE AS TO REGULATORY ADMINISTRATION OF THE CLEAN WATER ACT, SECTION 303(c), WATER QUALITY STANDARDS PROGRAM

I. INTRODUCTION

In 1989, the Swinomish Indian Tribal Community, ("Tribe" or "SITC"), applied for and received recognition as a "state" under Section 106 of the Federal Water Pollution Control Act, ("the Clean Water Act"), codified as 33 U.S.C. § 1256, for the development of water quality protection programs. In 2001, the Tribe applied for and received recognition as a "state" under Section 319(h) of the Clean Water Act, codified as 33 U.S.C. § 1329(h), for non-point source management programs. Additionally, in 2003, the Tribe also applied for and received recognition as a "state" under section 105 of the Clean Air Act, 42 USC § 7405. The Tribe now seeks recognition as a "state" under Section 303(c), codified as 33 U.S.C. § 1313(c), and Section 401, codified as 33 U.S.C. § 1341, in order to implement its new Clean Water Standards ("Standards").

Before the Environmental Protection Agency ("EPA") may approve a tribe's exercise of regulatory authority under the Clean Water Act, the Tribe must qualify for treatment as a state ("TAS"). Section 518(e) of the Clean Water Act, codified as 33 U.S.C. § 1377(e), establishes the threshold requirements that tribes must meet to be treated as a state.[1] These requirements are expanded upon and laid out in more detail in 40 C.F.R. section 131.8:

> (1) The Indian Tribe is recognized by the Secretary of the Interior and meets the definitions in Sec. 131.3 (k) and (l),
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> (2) The Indian Tribe has a governing body carrying out substantial governmental duties and powers,
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> (3) The water quality standards program to be administered by the Indian Tribe pertains to the management and protection of water resources which are within the borders of the Indian reservation and held by the Indian Tribe, within the borders of the Indian reservation and held by the United States in trust for Indians, within the borders of the Indian reservation and held by a member of the Indian Tribe if such property interest is subject to a trust restriction on alienation, or otherwise within the borders of the Indian reservation, and
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> (4) The Indian Tribe is reasonably expected to be capable, in the Regional

[1] Section 1377(e) provides that the Administrator of the EPA may grant a tribe status as a state provided that the following threshold requirements are met:

> (1) the Indian tribe has a governing body carrying out substantial governmental duties and powers; (2) the functions to be exercised by the Indian tribe pertain to the management and protection of water resources which are held by an Indian tribe, held by the United States in trust for Indians, held by a member of an Indian tribe if such property interest is subject to a trust restriction on alienation, or otherwise within the borders of an Indian reservation; and (3) the Indian tribe is reasonably expected to be capable, in the Administrator's judgment, of carrying out the functions to be exercised in a manner consistent with the terms and purposes of this chapter and of all applicable regulations. 33 U.S.C. § 1377(e).

iv. Tribal Water Resource Use.

Historically, Lone Tree Creek likely provided fresh drinking water for the tribe when they were engaged in beach seining at Lone Tree Point (Tribal Informants, pers, comm., 2004). As a perennial creek, Lone Tree Creek may have provided habitat for fish and wildlife year-round. Wildlife and fish, including salmon species, utilize Lone Tree Creek during the wet season.

v. Environmentally Sensitive Status.

The primary significance of this creek now and in the future, unless flow levels increase, is how creek waters impact water quality in Kiket Bay and groundwater quality in shallow nearby wells. Flow and creek habitat conditions preclude salmon spawning but salmon are found yearly in the lowest reach of the creek.

Lone Tree Creek enters Kiket Bay at Lone Tree Point lagoon-- a sensitive salt marsh wetland (pocket estuary) used by migrating salmonids. The lagoon is also immediately adjacent to tribal shellfish beds. Therefore, any pollution carried by the creek directly impacts important fish and shellfish resources. Bald eagles and osprey also nest in this sub-basin.

5) Snee-Oosh Creek.

i. Approximate division of ownership on the Reservation.

Snee-Oosh creek is located entirely on individual trust land.

ii. Description.

The creek flows from a large forested wetland near the crest of the Reservation uplands and enters the bay at the northern edge of the mudflats. The sub-basin is approximately 424 acres in area. The creek carves a steep-sided gorge through mixed conifer and deciduous forest. Substrate sediments include gravel and cobbles, with sand, clay and organic deposits in pools and boggy areas.

iii. Water Quality.

The overall water quality of Snee-Oosh Creek is good to marginal, however low in-stream flows and non-point source pollution within the watershed are negatively impacting the creek. Anecdotal evidence and limited scientific evidence suggest that low creek flows are a recent

development. Increasing development and use of groundwater resources within the Snee-Oosh Creek watershed may be impacting groundwater base flow into the creek. Groundwater base flow constitutes all of the creek flow during most of the summer. Low flows can result in fine substrate sediments settling into interstitial spaces between gravels, impacting macroinvertebrate organisms and potential salmonid spawning habitat. Additionally, low flows create geomorphic conditions that can result in the evolution of low habitat complexity, which limits biotic diversity. Low flows also create shallow conditions that result in marginally high temperatures and associated low dissolved oxygen that can kill fish and other aquatic life.

Ongoing, sporadic fecal coliform contamination exceeds water quality standards. The source of this contamination is unknown but may be related to failing septic systems, human and animal activity, or storm runoff. Dissolved oxygen is often below water quality standards during summer months. High turbidity and fine sediments observed in Snee-Oosh Creek impair the channel environment and may be related to logging, residential construction, or road construction.

Non-point pollution in the Snee-Oosh Creek sub-watershed comes entirely from on-Reservation sources. Existing potential pollution sources include runoff from lawns, gardens, parks, and roads, as well as forest and construction practices. Future increases in housing density may potentially introduce more of the same kinds of pollutants into Snee-Oosh Creek.

iv. Tribal Water Resource Use.

Though few salmonids have been observed in this creek in recent years, Snee-Oosh Creek has historically been an anadromous fish-bearing stream and has been designated appropriate for possible remote site egg incubator development that may provide for fisheries enhancement in the future. The creek has also been utilized for drinking water in the past.

v. Environmentally Sensitive Status.

Currently the creek provides important habitat for aquatic life and wildlife. Riparian zone and in-stream restoration efforts conducted during 1996 have successfully enhanced the stream ecosystem. Continued monitoring and enhancement efforts could return this creek to a productive, fish-bearing water resource.

6) Skagit Bay.

i. Approximate division of ownership on the Reservation.

The boundary of the portion of Skagit Bay within the regulatory boundaries of the Tribe begins north at Hope Island and ends at the most eastern point of land--Eagle's Nest where the Swinomish Channel begins. Given these delineations, at least three-fifths of the shoreline is in individual trust with the rest being made up of fee lands.

ii. Description.

Skagit Bay is a large waterbody extending south from Hope Island to Camano Island. The north half of the Reservation portion of Skagit Bay comprises a 40 meter deep basin. The south half of the Reservation portion of Skagit Bay includes expansive mudflats, sand bars, and patchy eelgrass meadows that de-water at extreme low tide. Skagit Bay is connected to Deception Pass by a deep trough that runs along the eastern shore of Whidbey Island. Cobble and gravel beaches below steep bluffs rim the mudflats and deep basin north of Pull and Be Damned Point. Snee-Oosh Creek enters Skagit Bay at the northern edge of the mudflats. Flow from the Skagit River depresses salinities and strongly influences the character of the water in Skagit Bay.

A large portion of the Skagit Bay watershed is zoned for Urban Residential development in Shelter Bay and is densely developed. Most homes within the watershed are on community sewer lines. Planned future uses within the Skagit Bay watershed may include increased housing density within the Urban and Rural Residential zones and in Shelter Bay.

iii. Water Quality.

Historic water quality data for Skagit Bay show that in the past the bay has failed to meet proposed Tribal water quality standards for fecal coliform. This pollution has since been minimized by the extension of sewer transmission services to these residential areas in the 1990s. Recent water quality monitoring shows no impairments at this time. However, excessive algae production, reported by local residents to be recent, may point to nutrient loading from a more recent source along the west shore.

Runoff and leachate from a recently capped and closed seventeen-acre dumpsite (a former gravel pit) may have impacted water quality in the past (Non-point Pollution Assessment, 2000). Potential non-point pollution sources include runoff from lawns and gardens, runoff from roads and boat traffic, and increased turbidity due to construction and logging practices. Logging may also increase nutrient loading. Skagit Bay is also subject to pollution flowing in via the Skagit River and associated sloughs and other off-Reservation sources. Under the current zoning, future increases in housing density may potentially introduce more of the same

kinds of pollutants into Skagit Bay.

iv. Tribal Water Resource Uses.

Historically, Skagit Bay, rich in numerous species of salmon, was the site of a community fishing camp and a Tribal fish trap that was located south of Snee-Oosh Creek. Located along the Pacific Flyway zone, traditional bird hunting also occurred in Skagit bay.

However, construction of the Swinomish Channel jetty changed Skagit Bay significantly by diverting some flow from the Skagit River (Borland, 1976). Mudflats have grown in size by as much as 2700 feet and wave amplitudes have changed, impacting tidal elevations (Borland, 1976). These changes likely resulted in the elimination of former oyster beds and fishing areas. The fish now bypass areas they once frequented for deeper waters much farther from the shore and outside Reservation boundaries. Oyster beds, clams, crabs and other shellfish resources near Deadman Island accessed by the community as recently as 30 years ago are no longer productive. The Tribal Community currently utilizes Skagit Bay waters for subsistence and commercial fishing, shellfish harvest and crabbing, picnicking and swimming. The salt marshes and eelgrass beds provide important habitat for juvenile salmonids that the Tribe has an interest in preserving to ensure salmonid fisheries survival and abundance (Cordell, 1986). The Tribal fishing fleet also uses the navigable channels across the Skagit Bay mudflats. In the future, the Tribe hopes for restored fisheries resources and increased harvest in Skagit Bay.

v. Environmentally Sensitive Status.

Shorelines in Skagit Bay have been designated as shorelines of statewide significance by the State of Washington. These waters are environmentally sensitive due to the abundant wildlife and aquatic life that rely on this habitat for feeding and refuge. Smelt and sandlance spawn along the Snee-Oosh shoreline. Eagles and heron and other waterfowl frequent the shallow waters of Skagit Bay to feed and seek refuge, as do harbor seals and fish. The salt marsh and mudflat ecosystem within Skagit Bay is important to ensure salmonid fisheries survival and abundance. These wetlands also serve to improve water quality.

7) Skagit River Delta.

i. Approximate division of ownership on the Reservation.

The shoreline surrounding all of McGlinn Island is in tribal trust, but the shoreline across from the east side of McGlinn island is not within the regulatory boundaries of the Tribe.

ii. Description.

Though tidally influenced, river water predominates in this small bay east of McGlinn Island. This fresh water influx is the reason the waterbody has been identified and treated as separate from Skagit Bay. The wetland is a network of sandbars, mudflats, braided channels and grass islands that grade into an estuary in Skagit Bay. Aquatic plants grow throughout the wetland. McGlinn Island has been set aside as open space for waterfowl and Tribal community uses. The wetland is host to a diverse community of birds, waterfowl, and other wildlife. Eagles frequently hunt in the area and nest nearby. A seagull rookery is located on one of the grass islands. Juvenile salmonids migrating out of the Skagit River system also utilize the wetland's rich habitat.

All of the land within this sub-basin is zoned for open space. Currently, one shelter exists within the area and is used periodically. The shelter is reached via a gravel road. A boat repair and haul out facility exisis on site and is presently leased to non-tribal operators.

iii. Water Quality.

Overall water quality within the Reservation portion of the Skagit River Delta is good. Ambient monitoring yielded occasional water quality problems due to fecal coliform bacteria, high temperatures, low pH, low dissolved oxygen, and turbidity. These may be related to natural conditions or up-river sources. Low pH and dissolved oxygen may be related to nutrient loading and associated bacterial-algal growth. The sporadic high fecal coliform concentrations may be the result of ongoing non-point source pollution. Contaminated groundwater and surface water entering the river could originate from failing or ineffective septic systems, leaky sewer lines, sewage treatment plant outfalls, and land application of treated effluent.

Current water quality data for the Skagit River Delta indicate that these waters occasionally exceed proposed water quality standards for turbidity, fecal coliform, temperature, and pH. This waterbody is influenced almost entirely by off-Reservation land use practices and activities via flow from the Skagit River and Sullivan Slough. (Non-point Source Pollution, OPCD, 29). Incoming tides may also carry pollution from adjacent watersheds. Skagit River basin uses include agriculture, dairy production, clear-cut logging, rural to urban residential, commercial, and industrial uses, and recreation.

On-Reservation lands adjacent to the Skagit River Delta wetland system

are very low use areas. Existing potential sources of pollution from on-Reservation include increased turbidity from natural erosion, and a small amount of runoff from occasional use of a gravel road. If construction plans for a cultural museum go ahead, runoff from roads and parking lots with increased traffic may introduce hydrocarbons to the wetland. Runoff from landscaped areas may introduce nutrients and inorganic chemicals from herbicides, pesticides, and fertilizers. In addition, air-borne chemicals from the boat yard and bacterial contamination from the museum septic system may also enter the wetland.

iv. Tribal Water Resource Uses.

The Tribal Community currently utilizes the Skagit River wetland for subsistence and ceremonial fishing, duck hunting, and swimming. In the future, the Tribe hopes to restore the fisheries resources to historic levels, which includes restoring and maintaining habitat in and around the Skagit River Wetland for juvenile and adult salmonids (Swinomish Comprehensive Plan, 1996).

v. Environmentally Sensitive Status.

These waters are environmentally sensitive due to the abundant wildlife and aquatic life that rely on this habitat for feeding and refuge, especially juvenile and adult salmonids, eagles, waterfowl, and nesting seagulls. The wetland is host to a diverse community of birds, waterfowl, and other wildlife. Eagles frequently hunt in the area and nest nearby. A seagull rookery is located on one of the grass islands. Juvenile salmonids migrating out of the Skagit River system also utilize the wetland's rich habitat. Aquatic plants also grow throughout the wetland. The wetland system itself also serves important water quality and hydrologic functions. The landscape is of high scenic value due to the water resources present. McGlinn Island has been set aside as open space for waterfowl and Tribal community uses.

8) Swinomish Channel.

i. Approximate Division of Ownership on the Reservation.

About two-fifths of the uplands bordering the Swinomish Channel is in tribal trust, another two-fifths is in individual trust and about 1/5 is on fee land but over half of this fee land is Tribally-owned.

ii. Description.

The Reservation uplands bordering the Swinomish Channel comprise approximately 8.4 miles of shoreline, extending from Padilla Bay to Hole

In The Wall at the southern tip of the Reservation. At treaty time, the Swinomish Channel was a shallow estuarine tidal channel system and distributary for the Skagit River. The Army Corps of Engineers has been dredging and maintaining the channel as a navigable waterway since the beginning of the 20th century. The dredged channel extends across mudflats and sea grass meadows in Padilla and Skagit bays. Dredge spoils deposited on the shores of the channel have replaced the mud flats of the original system with salt marshes and sandy beaches. The majority of the channel banks are armored. Though Skagit River water still enters and influences the hydrology and chemistry of the channel, the greater part of Skagit River flow has been deflected into Skagit Bay by a constructed jetty (Borland, 1976; Yates, 2001). Combined tidal and riverine processes in the channel result in a northerly net flow averaging 1.5 to 1.7 feet per second at peak tides (Rensel and Miller, 1985).

A remnant channel island/sand bar has been augmented with dredge spoils to form a shrub-vegetated causeway connecting McGlinn Island to the Skagit flats. Bulkheaded dikes are constructed in the agricultural lands in the north to keep tidewaters out. Numerous seeps and springs feed a network of wetlands at the toe of the bluff along the west side of the agricultural lands. In the northern agricultural lands, surface runoff is collected in remnant sloughs and agricultural ditches and carried to the channel.

iii. Water Quality.

Ambient water quality monitoring of the Swinomish Channel has been conducted at Kwonesum, a residential development, at the opening of the north agricultural slough, at Shelter Bay Marina, and at the Swinomish fishing docks. Water quality within Swinomish Channel is generally acceptable and within proposed Tribal Water Quality Standards. Low level, episodic fecal coliform bacteria contamination was found in the Swinomish Channel from Shelter Bay to Kwonesum and may pose a human health risk to swimmers making use of the Swinomish docks. Intermittent high turbidity may impact aquatic life, including salmon and shellfish in the channel.

The Swinomish Channel is at risk of water quality contamination from several on-Reservation point and non-point sources. The Shelter Bay sewage treatment plant outfall introduces bacteriological contamination, nutrients, and chloride and other inorganic chemicals. Fecal coliform exceedences may also be attributed, at least in part, to non-point source bacteriological contamination from the septic field at Kwonesum (a residential development) and storm-water runoff from hobby farms and high-density areas. Runoff from the log yard may cause nutrient loading

and contamination from chemicals used to treat the logs. Runoff from lawns, gardens, and agricultural lands may introduce nutrients and inorganic chemicals from herbicides, pesticides, and fertilizers. Air-borne and water-borne chemicals from the boat yard may also enter the channel in spite of the water collection and treatment system in place. Runoff from a dense network of roads and high traffic volumes in the area along with boat traffic on the channel may result in high hydrocarbon concentration in the channel. Also, on-reservation logging, construction, and agricultural practices may contribute to high turbidity.

Off-Reservation use of the Swinomish Channel includes the LaConner Regional Sewer Treatment Plant outfall and the LaConner Marina, which are located directly opposite the Swinomish Village.

iv. Tribal Water Resource Value.

Historically, the Tribe used the Swinomish Channel for catching salmon using specially designed family traps placed along the Channel (Tribal informant, 2004). The Swinomish Channel has been a primary migration route for salmonids (Borland, 1976). When the Army Corps of Engineers began dredging the channel at the beginning of the 20th century, the Corps not only made the channel more deep and narrow, but also dumped the dredge spoils on the Reservation side, effectively destroying much of the shellfish habitat in the process. The channeled wetlands along the shore, though heavily altered, provide important habitat for juvenile salmonids. Harvestable oyster beds have seeded within the rip-rap along the north Channel.

Tribal Community members use the Channel for fishing, swimming, crabbing, hunting, boat moorage, and navigation. Swinomish Channel waters are also utilized to dilute effluent from several point source discharges. The sewage treatment plant outfall for Shelter Bay has been emptied into the Channel, and storm-water drains for Swinomish Village and Shelter Bay, and storm-water drains for the Skagit Bay Boatyard, Dunlap Log Yard, and Tribal Fish Plant empty into the Swinomish Channel.

The low level, episodic fecal coliform bacteria contamination mentioned in the water quality section may pose a human health risk to swimmers making use of the Swinomish docks. However, net north flow in the channel and excellent water quality with respect to bacteria in east Skagit Bay indicate that the bacteria pollution is not impacting potential shellfish growing areas in Skagit Bay.

Tribal Community members also frequently hunt in this area. The lowlands along the north part of the channel are home to numerous

migrating birds and waterfowl following the Pacific Flyway. Extensive networks of wetlands in the lowlands off the shore provide shelter and food for the birds.

In the future, the Tribe may expand fisheries operations on the channel, construct a public marina proposed at the north end of the channel, and increase density within the village and Shelter Bay.

v. Environmental Sensitivity.

These waters are environmentally sensitive due to the abundant wildlife and aquatic life that rely on this habitat for feeding and refuge. Eagles and herons and other waterfowl frequent the shallow waters of these bays to feed and seek refuge, as do harbor seals and fish. Sea otters, seals, peregrine falcons, cormorants, kingfishers and other wildlife also make use of the area. The salt marshes provide important habitat for juvenile salmonids. These wetlands also serve to improve water quality. The shorelines of the Swinomish Channel have been designated as shorelines of statewide significance by the State of Washington.

9) Munks Creek.

i. Approximate division of ownership on the Reservation.

The majority of Munks Creek flows through individual trust land, with only approximately one-eighth of the stream in the upper reach, near the head waters, flowing through fee land.

ii. Description.

Munks Creek sub-basin drains an area of approximately 303 acres. Numerous seeps and gullies along the east slope of the Reservation drain into a narrow bog that feeds Munks Creek. The creek channel widens into a second small wetland approximately 600 feet from its headwaters and then continues for another 2800 feet before entering the Swinomish Channel. The creek carves a steep-sided gorge through mixed conifer and deciduous forest. Historically, stream flow within the upper reach just above Reservation Road was substantial enough to fill a ceremonial bathing tub. In recent years, flow in the upper reach of the creek has decreased to almost nothing during the summer. The stream and wetland system of Munks Creek and the adjacent dense forests are home to many aquatic and wildlife species including deer, otter, herons, and other birds. Munks Creek enters the Swinomish Channel on a relatively isolated and undisturbed stretch of beach that is home to river otters and other wildlife. The area is also frequented by great blue herons that nest nearby.

iii. Water Quality.

Munks Creek is monitored near the mouth of the creek, where it enters the Swinomish Channel above the area of tidal influence. Low in-stream flows and non-point source pollution within the watershed are negatively impacting the creek. Some bacterial contamination has been noted during ambient monitoring in the past but it appears to be improving. The creek has very low summer flows and low year-round flows. Low flows can result in fine substrate sediments settling into interstitial spaces between gravels, impacting macroinvertebrate organisms and potential spawning habitat. Additionally, low flows create geomorphic conditions that can result in the evolution of low habitat complexity, which limits biotic diversity. Low flows also create shallow conditions that result in marginally high temperatures and associated low dissolved oxygen that can kill fish and other aquatic life. Anecdotal evidence and limited scientific evidence suggest that low creek flows are a recent development.

Overall, current and historic water quality data indicate that Munks Creek meets proposed water quality standards for conventional parameters except for low pH. A bog wetland may be the cause of the low pH found in the stream reach between the headwaters wetland and the lower wetland.

Existing potential pollution sources within the sub-basin include runoff from Reservation Road, which may introduce hydrocarbon contamination to the stream, and forest practices, which may increase turbidity, increase temperature, decrease dissolved oxygen, and increase nutrient loading. Though the Kwonesum development is located outside the surface watershed sub-basin, drawdown at the Kwonesum community well may impact base flow contribution to in-stream flows in Munks Creek, which is vital to salmon and other aquatic life.

iv. Tribal Water Resource Use.

Historically, this creek has been an important place to the Swinomish people for cultural and spiritual practices. The Tribal Community did use Munks Creek up until fairly recently for spiritual and cultural purposes, including spiritual bathing, but has since discontinued using this area for traditional reasons (Tribal informant, 2004). Some now abandoned homes along the creek pulled drinking water from the creek. Munks Creek has historically been an anadromous fish-bearing stream. The creek was also once used for an old fish hatchery that raised chum salmon and has been designated appropriate for possible remote site egg incubator development for fisheries enhancement in the future.

v. Environmental Sensitivity.

Munks Creek is an important and sensitive cultural and spiritual resource. The creek also provides important habitat for aquatic life and wildlife, including river otters and deer. This creek has the potential, through enhancement efforts, to be a productive, fish-bearing water resource.

10) Fornsby Creek.

i. Approximate division of ownership on the Reservation.

Fornsby Creek begins in fee land and continues on for about 3/5 the length of the stream, runs through tribally owned fee land, and finally ends in individual trust land that adjoins the Swinomish Channel.

ii. Description.

The Fornsby Creek sub-basin drains an area of approximately 252 acres. Fornsby Creek arises from numerous seeps and small wet depressions along the hilltop and east slope of the Reservation above the south end of the agricultural lands. The upper reach of the creek flows in a steep-sided gorge through mixed conifer and deciduous forest from the hill top east approximately 2700 feet. The lower reach of the creek flows an additional 5200 feet into the Swinomish Channel.

Stream banks are mucky clay with a thick layer of organic debris under canopied banks in the upper reach. When Fornsby Creek enters the agricultural flat lands, the stream channel is confined to diked agricultural ditches until it reaches the Swinomish Channel. The stream gradient through the agricultural lands is nearly flat. Two or more agricultural ditches or remnant sloughs discharge to the lower reach of the creek. Since this waterbody is at sea level, a tide gate at the mouth of the creek prevents tidal inundation. The upper reach of Fornsby Creek and the adjacent forest is habitat to numerous aquatic and wildlife species. The lower reach of the creek supports Sticklebacks and other tolerant aquatic species. The area is also frequented by great blue herons that nest nearby.

iii. Water Quality.

Since 1997, Fornsby Creek has been monitored at the Cornwall family farm, located at the base of the bluff where the creek changes gradient and flows across the flats into the Swinomish Channel. The creek is now monitored extensively at the lower reach as well. Overall water quality in Fornsby Creek is good, however low in-stream flows and non-point source

pollution within the watershed are negatively impacting the creek. Several of the conventional parameters measured occasionally exceed proposed Tribal water quality standards. Temperatures are occasionally high and dissolved oxygen may be low during the summer months. Turbidity has been greater than expected 50% of the time. Fecal coliform was also occasionally high. Fornsby Creek is a drinking water source for one household.

The creek is impaired due to very low summer flows and low year-round flows. Low flows can result in fine substrate sediments settling into interstitial spaces between gravels, impacting macroinvertebrate organisms and potential spawning habitat. Additionally, low flows create geomorphic conditions that can result in the evolution of low habitat complexity, which limits biotic diversity. Low flows also create shallow conditions that result in marginally high temperatures and associated low dissolved oxygen that can kill fish and other aquatic life. Anecdotal evidence and limited scientific evidence suggest that low creek flows are a recent development.

Very little current or historic non-point pollution data exist for Fornsby Creek. Recent water quality monitoring has identified high turbidity, low dissolved oxygen concentrations, and moderately high fecal coliform concentrations in the upper reach of Fornsby Creek relative to proposed water quality standards. Potential sources of pollution in the upper reach include failing residential septic systems, logging practices, residential gardening and yard care, and construction activities. Water quality impacts along the lower reach are expected to be severe. This is a target area for future monitoring and restoration because it harbors important off-channel habitat for rearing and migrating salmon.

Current potential sources of pollution within the lower reach are related to agricultural practices which may contribute nutrients, pesticides, herbicides, nuisance algal growth due to nutrient loading, temperature degradation due to lack of riparian cover, low dissolved oxygen concentration due to high temperatures, and sediment loading. Fee lands within this sub-basin also overlie the recharge zone for groundwater aquifers.

iv. Tribal Water Resource Uses.

Currently, Fornsby Creek is the primary source of drinking water for one household within the sub-basin. The creek is also used by fish and wildlife and may provide for fisheries enhancement in the future.

v. Environmental Sensitive Areas.

The creek also provides important habitat for aquatic life and wildlife, including river otters and deer. This creek has the potential, through enhancement efforts to return to a productive, fish-bearing water resource.

C) **References:**

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D) **The Values of the Water Bodies to the Tribe.**

Each waterbody has a unique combination of cultural, economic, and environmental value that affects its priority to the Tribal Community.

Cultural value is assessed based on five selection factors. Watersheds that are currently, or were historically, used for spiritual or ceremonial purposes received two points. Watersheds that support recreational uses received one point for secondary contact recreational activities (boating, wading, etc.) or two points for primary contract activities (swimming, other full-immersion activities). Watersheds that support traditional harvest resources received one point each for significant terrestrial resources and/or significant aquatic resources. Watersheds with culturally significant species were given two points. Finally, watersheds containing known or potential archeological or historic sites received two points. No attempt was made to scale these scores to reflect frequency or importance of utilization or quantity or quality of resources. As such, the assessment is a crude measure of cultural significance and may benefit from refinement as additional assessment tools become available.

Economic value is determined based on five major economic uses of shellfish or fish (including whether the water source is used for fishing or shellfishing) logging, or agriculture, whether it has development potential, or is utilized for tribal economic benefit.

Environmental value was evaluated using three criteria. Two points were given for watersheds with a known presence of sensitive species, including species listed as endangered or threatened or proposed for listing. Watersheds received up to two points if a significant part of the upland watershed was relatively undisturbed. Finally, two points were given to each watershed or sub-watershed containing critical areas, including groundwater recharge and aquifer protection areas, geologic hazard areas, critical habitat, streams, creeks, springs, riparian areas, and wetlands.